Students' Perspective:

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Over the past few decades, universities and colleges have continued to invest in the technologies that allow students to complete coursework and obtain credits in higher education through distance learning. In more recent years, there has been a push to supplement traditional modes of learning (i.e., face-to-face learning) with more web-based methods via hybrid and online classes. Today, online courses are an important component of college curriculums that allow for students of all ages and backgrounds to customize their class schedules in ways that accommodate their busy lifestyles. Furthermore, online courses have become even more pertinent after the COVID-19 pandemic and the threats it presented to the education system. Academic institutions were forced to make drastic changes to the way they made their services available to students, including the courses being taught. As a result, many students currently enrolled in or recently graduated from college have taken at least one online class.

The goal of this study is to contribute to the existing body of research concerning the differences in face-to-face learning and online learning by examining how each method of teaching impacts students' performance and overall satisfaction. Performance, as it relates to this study, consists of the students' engagement in their coursework, their motivation to learn, whether they held themselves responsible for their own studying, and their final grades. Overall satisfaction is related to the students' satisfaction with the interactions between them and their teachers and fellow students, and whether the quality of the coursework met the students' expectations. Current studies that have examined performance and overall satisfaction in relation to traditional and online learning have produced mixed results. The clear advantage to online learning is that it provides greater access to higher education for non-traditional students and allows for more flexible schedules; however, it is also believed to promote more interactivity

between students and their peers, professors, and course material (Emerson & MacKay, 2011)—

which would result in higher overall satisfaction as it is defined in this study. Conversely,

Tratnik et al. (2019) suggest studies examining satisfaction in online and traditional learning

have produced inconsistent results, indicating that students' satisfaction was higher in face-to-

face classes in some studies, higher in online classes in others, and showing no significant

differences in other studies. Results from this current study will attempt to clarify which of the

modes of learning promotes higher levels of overall satisfaction and student performance to

contribute to the literature pertaining to educational psychology.

To further examine the differences between traditional and online classes, Emerson and

MacKay (2011) conducted a study that presented two versions of the same lesson that only

differed in their mode of presentation and compared the effects they had on cognitive workload

of the participants. The lessons presented were on apostrophe usage using an online interactive

platform called *Interactive grammar!* for the web-based condition which could be replicated as a

paper-based study guide to be presented in a paper-format condition. A pre-test questionnaire

was used to assess the participants' present attitudes towards learning how to use apostrophes

and the researchers found that participants in both conditions presented similar attitudes prior to

being randomly assigned to one of the study conditions. After completing the lessons on

apostrophes, participants were given a summative test to assess their mastery of the punctuation

usage. Upon completion of the mastery assessment, participants filled out two post-test

questionnaires. The first measured their levels of confidence in the material and found that

participants in both conditions were confident in their use of the punctuation in general. The

second measured cognitive workload stress and the scores were similar for both conditions. The

researchers' first hypothesis stated that one mode of lesson presentation would have higher levels

of workload stress which would cause a difference in learning outcomes, i.e., performance. This

hypothesis was not supported by the data. Their second hypothesis predicted participants sitting

for the online version of the apostrophe lesson might engage differently than the paper-format

condition. The evidence to support this hypothesis was not strong; however, the researchers

believed that the participants perceived the online, interactive version of the lesson and

summative test as online quizzes found on social media websites. As a result—due to instant

feedback and interactivity—the participants engaged less deeply than they would have on a

paper format of the lesson. Because of this, the participants in the paper-format condition

performed 24% better than those in the online condition.

       To explore student satisfaction in online learning versus face-to-face learning, Tratnik et

al. (2019) conducted a study in a Business English class that taught English as a foreign

language. The researchers sought to investigate the effectiveness of online learning on student

satisfaction as it relates to course quality, course content, student interactions, and study material.

An online Business English course was developed by modifying an existing course (used for the

face-to-face condition) to be presented in an online environment. Detailed instructions were

given to all students assigned to the online course and the same tutor was used for both

conditions. The same final examination was used at the end of both courses that tested the

students' language skills and business English vocabulary. Upon completion of the final

examination, a questionnaire was used to obtain student feedback regarding satisfaction of the

different aspects of the course. Analysis of the completed questionnaires showed that students in

the traditional, face-to-face setting expressed higher levels of satisfaction than the students in the

online course. Researchers found that students reported more satisfaction with the traditional

course, claimed it was of higher quality, and met more of their expectations. There was also

higher levels of learning motivation and peer interaction between students in the classroom setting condition. It is also important to note that the students in the face-to-face group performed better on the Business English examination.

In another study comparing online and traditional homework, a systematic review was conducted by Magalhaes et al. (2020) to explore and learn the methodological features of the studies used to compare online and traditional homework and determine which of the two modes of homework benefits students' performance most. Through an extensive selection process for the literature review, 31 studies were included in the final review. The measures of student performance assessed and compared in the individual studies included overall performance, retention of knowledge, homework assignments completed, exam and final grades, and pre-post-test measures. Of the 31 studies examined in this review, 15 of the studies resulted in similar outcomes for students' performance in both traditional and online homework. Nine studies concluded that online homework benefited students' performance more so than face-to-face homework. Only one study showed that traditional homework was more beneficial to students' performance, and six studies reported mixed results.

Thus far, research concerning student performance and overall satisfaction in online classes versus face-to-face classes has produced inconsistent results. From our literature review, two of the studies suggest that student performance is higher in traditional classes. Accordingly, our first hypothesis predicts students will report experiencing higher levels of performance in their face-to-face classes than in their online courses. More specifically, we believe students will report having higher levels of learning motivation and coursework engagement in the traditional classroom setting resulting in higher final grades. Our second hypothesis predicts students will report experiencing higher levels of overall satisfaction in their online courses due to feeling that

the coursework and interactions within the virtual setting were of a higher quality and met more of the students' expectations compared to their face-to-face classes.

Method

Participants

We surveyed 55 Angelo State University students with the goal of determining the differences in performance and overall satisfaction in online classes compared to face-to-face classes. Of our sample, females made up 78% of the participants and males made up 22% with ages ranging from 18 to 38 ($M = 19.82$, $SD = 2.87$). Out of the 55 participants, 53% were white or Caucasian, 29% were Hispanic or Latin, and 7% were Asian or Pacific Islander. The remaining 10% of our sample were African American and biracial students, each making up 5% of the participants. Students were recruited using Sona-systems—an online recruiting tool utilized by the psychology department at Angelo State University—which allows students to sign up for available psychology studies.

Design

Our study follows a quasi-experimental, within-subjects design using a non-manipulated, subject variable (class format) to define the conditions and has two dependent variables: performance and overall satisfaction. Each participant responded to statements in both conditions and all variables were categorized as continuous. Although we were unable to establish an absolute cause-and-effect relationship, we did attempt to explain the differences between the two modes of learning by comparing the scores collected from the survey.

Measures

Students' responses were collected from a questionnaire composed of 20 statements pertaining to different aspects of each of the dependent variables of this study: half for online

courses and half for face-to-face classes. Of the ten statements per condition, five were related to performance and five were related to overall satisfaction. The statements in this survey were adapted from an integrated skills e-learning model (Tratnik & Jereb, 2013). Participants responded on a Likert type scale with 1-Strongly Disagree to 7-Strongly Agree. Examples of the items were: *I have been satisfied with the quality of my face-to-face courses* and *My online courses have involved a lot of self-study*. We collected data related to the demographics of the participants in this study to better understand our sample. Demographic information consisted of race/ethnicity, age, and gender.

Procedure

The participants of this study were students at Angelo State University that were recruited using Sona-systems, an online tool used by the psychology department. The students were incentivized with receiving .5 credits if they completed the survey that they could apply to one of their psychology courses either to satisfy a course requirement or for extra credit. The questionnaire was created, and data collected, using the online software program Qualtrics—a secure platform for collecting data online. At the beginning of the study the students were presented with a consent form that gave them information about our study, and if they agreed to participate they clicked on "Agree". After agreeing to participate, the students were presented with a 20-item questionnaire with statements pertaining to various aspects of performance and satisfaction in both their online and face-to-face courses. Prior to beginning each section, the students were asked if they had taken an online class and a face-to-face class. If they answered "no" to either one, the program skipped to the end of the survey, and they were excluded from the study. After responding to the questionnaire, the students completed three demographic questions related to race/ethnicity, age, and gender. Upon completion of the survey, the students

were presented with a debriefing page that informed them of the general aim of the research study, the type of study it is, what topic of psychology the research illustrates, where they can learn more about this type of research, and the contact information of our faculty advisor in case they had any questions. After reading the debriefing page, their participation was complete.

Results

Students' performance and overall satisfaction in both modes of learning were evaluated. Our first hypothesis predicted that students would report experiencing higher levels of performance in their face-to-face classes compared to their online courses. Using a paired-samples t-test to examine the means of the students' responses regarding performance, analysis showed the scores for students' performance in their face-to-face classes ($M = 5.83$, $SD = .91$) were significantly higher than the scores in their online classes ($M = 4.19$, $SD = 1.27$), $t(54) = 7.98$, $p < .001$, which supported our hypothesis. Our second hypothesis predicted students would report experiencing higher levels of overall satisfaction in their online classes compared to their face-to-face classes. Contrary to prediction, analysis via a paired-samples t-test showed scores regarding students' overall satisfaction were significantly higher in their face-to-face classes ($M = 5.93$, $SD = 1.06$) compared to their online classes ($M = 4.07$, $SD = 1.46$), $t(54) = 7.86$, $p < .001$.

While our first hypothesis was supported by the data in this study, our second hypothesis was not because students responded with higher scores for both performance and overall satisfaction in their face-to-face classes. Considering the responses for both variables were higher in face-to-face classes, we decided to conduct an analysis of the total means for each mode of learning. We created a face-to-face variable that combined the scores of the students' performance and overall satisfaction in their face-to-face classes and created an online variable that combined the scores of their performance and overall satisfaction in their online courses.

Then, comparing the means of the two combined variables via a paired-samples t-test, we discovered that students reported higher scores for their face-to-face classes (M = 5.88, SD = 0.93) than for their online classes (M = 4.13, SD = 1.23), t(54) = 8.81, p < .001. This may indicate that students prefer a more traditional method of learning to web-based learning.

Discussion

The current study aimed to determine whether college students experienced higher levels of performance and overall satisfaction in their online classes compared to their face-to-face classes. After conducting our literature review and considering our own experiences with both methods of learning, we developed two hypotheses. The first hypothesis predicted that students would report experiencing higher levels of performance in their face-to-face classes. In support of this hypothesis, we found that students did report that they performed significantly better in the traditional classroom setting. This would imply that students are more engaged in their coursework, are more motivated to learn, and take more responsibility for their own studies when attending a physical classroom setting. As a result, students achieve higher grades. Interestingly— while one would believe that students would take more responsibility for their own studies in an online course due to limited interactions with their professor and fellow classmates—many students may be less engaged and, therefore, less motivated to excel in web-based learning. One possibility for this, as stated by Emerson and MacKay (2011), is that students engage differently in online quizzes and exams because they perceive them in the same light as social media games. This might mean that students do not reflect as deeply, or for as long, on the material they are learning online because they do not associate it with a formal education. Further research is needed to determine the exact reason for less engagement and learning motivation as it relates to web-based classes.

The second hypothesis predicted that students would report experiencing higher levels of overall satisfaction in their online classes. Based on our own experiences with online courses, we believed that students would enjoy the flexibility in their schedules and the ability to avoid the hassles of attending on-campus classes offered by taking online courses. However, contrary to our prediction, we found that the participants of this study reported higher levels of satisfaction in the traditional classroom setting. The implications of these findings are that students' expectations of quality interactions and coursework are met in a face-to-face class more so than in a virtual setting. This finding supports the study conducted by Tratnik et al. (2019) who observed that course quality, peer and teacher-student interactions, students' expectations, and course delivery "are statistically significant drivers of student satisfaction" (p. 40).

In the current study, one constraint stems from the limited sample of participants available to participate in the survey. Because studies within Sona-systems are only available to psychology majors, no other academic disciplines were included in this study. To expand on this research, the study will need to be available to a broader demographic of college students majoring in a variety of different disciplines including business, technologies, mathematics, and the physical sciences. Another limitation in the analysis of our data is the classification of the students and their experience with each mode of learning. Our study does not distinguish between lower-level and upper-level students or account for the number of online classes they have completed. It would be important to know if students who have more experience with online learning have a different opinion about their performance and overall satisfaction compared to students who may have only taken one online course at the time of participating in this study. Finally, the questionnaire used in this study was limited in the number of aspects pertaining to each variable. With performance, the statements in the survey were related to

learning motivation, engagement, responsibility, and grades. As for overall satisfaction, we only offered statements pertaining to quality of course work and interactions, and students' expectations. Future studies should utilize a questionnaire that presents more statements related to each of the variables including learning resources, feedback, types of learning, and perceived level of knowledge acquisition (Tratnik & Jereb, 2013). Furthermore, it would be interesting to explore the relationship between grades and overall satisfaction, especially regarding online classes. What would be beneficial for the field is if we could determine whether satisfaction in online classes is lower due to poorer grades, or if grades are lower due to students not completing the work as a result of not being satisfied with the online course.

As mentioned earlier, research comparing both traditional and web-based learning have produced mixed results. While some studies have focused specifically on homework as it is presented in the two methods of learning, others have concentrated on specific disciplines. What we were unable to uncover in our literature review were any studies that examined the participants' reported experiences in both modes of learning as in a within-subjects design. The goal of this study was to contribute research to the scientific literature that is focused on viewing the two modes of learning through a broader, more general scope. By understanding the reasons students still prefer their face-to-face classes to online courses, we can begin to develop more effective methods of delivering education via online courses that promote greater student performance and overall satisfaction.

Ultimately, online learning is here to stay. Higher education institutions have been working for decades to improve web-based learning and reach a larger population of students. However, despite the vast number of resources used to make improvements to the digital mode of learning over the years, it would seem students still prefer the traditional, in-class setting. So,

what is it that causes students to report experiencing higher levels of performance and overall satisfaction in the classroom? Is it the environment? The human interaction? The delivery of materials? These are questions that research in the field of Educational Psychology will need to answer to bring online learning up to par with face-to-face learning in the future.

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